One of the tendrils of the main stem failing to find other support had, as it appears, wound itself around a higher internode upon the same shoot and, after making one complete revolution had turned sharply around enclosing itself in a loop and then encircled the stem in the opposite direction. The knot-like loop, thus formed, was evidently so tight that further enlargement of the stem at this point was stopped. Growth of the adjacent parts, however, continued both above and below giving rise to a deep constriction in which the tendril was buried. This must have occurred during the growing season of 1900. In the spring of 1901 the part of the stem below the tendril put out leaves as usual, but the part above failed to develop its foliage and although still slightly green beneath the outer cortex showed unmistakable signs of death and decay. An examination of several other plants of Virginia Creeper indicates that the tendrils not rarely attach themselves to the stem that bears them but without injuring it. In the case particularly described the suicidal result was doubtless due to an unusually tight knot formed by the tendril. The fact that the stem continued to grow above the stricture and only died as winter came on shows the case to be analogous to the death of a shoot by girdling.— B. L. ROBINSON, Gray Herbarium.

THE HERBARIA OF NEW ENGLAND.

MARY A. DAY.

(Continued from page 222.)

Frost, Charles Christopher. — Mr. Frost's herbarium is now stored in the Brook's Library, Brattleboro, Vermont, and is under control of the library authorities. It consists largely of a set of lichens, a set of Lesquereux' mosses (several hundred numbers in the original fascicles), and an unmounted set of fleshy fungi (usually only rough dried) in pasteboard boxes. Most of the labels accompanying the fungi give only the name of the genus and species, but no data regarding the locality, date, or collector. This part of the collection is now in the basement of the library and is not accessible for study. The lichens are in cases in the main library room and can be seen by visitors.

Fuller, Timothy Otis, NEEDHAM, MASS. In 1882 Mr. Fuller

began his herbarium of New England plants, and has increased it steadily year by year. He has 552 genera of phaenogams and vascular cryptogams consisting of 1535 species and 55 varieties, mounted on 2900 sheets. Of these species 139 belong to the pteridophytes, 143 to the *Gramineae*, and 142 to the *Cyperaceae*, the genus *Carex* alone containing 96 species. This herbarium is carefully arranged and fully indexed which facilitates botanical work in it.

Furbish, Kate, BRUNSWICK, MAINE. — Miss Furbish has a herbarium which represents her collections in the different parts of Maine during the last twenty-five years. It is partly organized and contains many of the plants represented by her paintings of the flora of Maine.

Graves, Charles Burr, NEW LONDON, CONNECTICUT. — The herbarium of Dr. Graves represents chiefly the flora of New London, Connecticut, but includes also some specimens from the White Mountains and western Massachusetts. Large collections have been made of the *Gramineae*, *Cyperaceae*, and vascular cryptogams, while the genera *Aster*, *Solidago*, and *Prunus* are well represented. This collection, of perhaps 2000 specimens, contains mosses as well as phaenogams and ferns.

Gray, Asa, see Harvard University, Gray Herbarium.

Green, Arnold, PROVIDENCE, RHODE ISLAND. — For the last thirty years Mr. Green has collected plants in the vicinity of his home, and his herbarium, which contains about 1500 sheets including about 1200 species, is mostly local.

Greene, Benjamin D., see Boston Society of Natural History.

Grout, Abel Joel, BROOKLYN, NEW YORK. — Mr. Grout's herbarium contains about 1500 sheets of Vermont phaenogams, 700 species of Vermont fungi, and 250 species of New England mosses. His collection is especially rich in Vermont asters.

Harger, Edgar Burton, OXFORD, CONNECTICUT. — In 1878 Mr. Harger and the late John Harger, his father, began a collection of plants which has steadily increased until it now contains about 1650 species, represented by 2900 sheets, of flowering plants and ferns, and about 350 species, or 400 sheets, of the lower cryptogams. Nearly 75 per cent of these plants have been collected by Mr. Harger, who has made an attempt to represent as completely as possible the flora of Connecticut, and especially that of the town of Oxford.

Harvard University, Arnold Arboretum, JAMAICA PLAIN,

MASSACHUSETTS.— The earliest portion of this collection dates back to 1878 when a few specimens of woody plants were organized as a herbarium. In 1882 it had grown to 6000 or 8000 sheets and August 1, 1900, it numbered 34513 sheets. It consists of specimens of trees and shrubs from all parts of the world, and is specially rich in *Coniferae*. An excellent library of 7300 volumes is connected with it. Professor Charles Sprague Sargent has the direction of this herbarium.

Harvard University, Botanical Museum, CAMBRIDGE, MASSACHUSETTS.— The herbarium at the Botanical Museum is a working collection for classes in Botany at Harvard College. It contains phaenogams and vascular cryptogams arranged in the order of Engler & Prantl's Natürlicher Pflanzenfamilien. It comprises about 10000 sheets of which about 1000 are Japanese, 1500 European, and 7500 are American. This collection is in charge of Professor George Lincoln Goodale.

Harvard University, Cryptogamic Herbarium, CAMBRIDGE, MASSACHUSETTS. — The Cryptogamic Herbarium of Harvard University contains the collection of fungi of the late Rev. M. A. Curtis and other valuable collections of fungi and is especially rich in published series of *fungi exsiccati*. The most important representation of lichens is the collection of Professor Edward Tuckerman which was purchased in 1888; other valuable sets of lichens are those of Mr. C. J. Sprague, Professor J. Mueller, and Professor Farlow.

The *Algae* of this herbarium are of wide geographic range — the most extensive set being presented by Dr. C. L. Anderson of Santa Cruz, Cal. Among the exotic species are the sets of Professor G. J. Agardh, Prof. J. E. Areschoug, Mr. E. A. Batters, Dr. Ed. Bornet, Professor C. Flahault, Dr. M. Foslie, Professor E. M. Holmes, F. Hauck, Dr. P. Hennings, Professor F. J. Kjellman, M. A. Le Jolis, Baron F. von Mueller, Maj. T. Reinbold, Professor J. Reinke, Dr. L. K. Rosenvinge, Madam Weber van Bosse, Professor E. P. Wright, and others.

The *Musci* are represented by the herbarium of Mr. W. S. Sullivant, the large collection of Mr. Thomas P. James, and the collection of Mr. Thomas Taylor, all of which have been recently transferred to the Cryptogamic Herbarium from the Gray Herbarium.

An accurate count of the cryptogamic herbarium has never been made but a conservative estimate would place the number of speci-

mens at several hundred thousand. Professor William Gilson Farlow has the care of this herbarium.

Harvard University, Gray Herbarium, CAMBRIDGE MASSACHUSETTS. — Early in his botanical work, about 1835, Dr. Gray began his herbarium and its development remained through the rest of his life one of his chief aims. His own collecting was largely done in the lake-region of western central New York, the southern Alleghanies, the central Rocky Mountains, Mexico, and California. While the plants thus secured are numerous, they form but a very small part of his herbarium. Associated with Dr. John Torrey from 1838 to 1843 in the preparation of the Flora of North America, Dr. Gray received duplicate types of nearly all the plants therein described. Soon after began the notable series of trans-continental surveys which opened up the vast region of the Great West. During this epoch extending from Frémont's Expedition in 1842 to the Natural History Survey of California (the botanical results of which were published in 1876–1880) Dr. Gray's eminence in American botany attracted to him an extraordinary wealth of botanical material from all regions which were being explored. The collections of the Pacific Exploring Expedition, of Charles Wright in Texas, New Mexico, Arizona, Cuba, and Nicaragua, of August Fendler in New Mexico, Venezuela, and Trinidad, of Dr. George Thurber on the Mexican boundary, of Messrs. Brewer, Bolander, and others in California, of Dr. Sereno Watson in the Great Basin, and of Dr. Rothrock in Arizona, merit particular mention on account of their size and importance. Dr. Gray also stood, almost from the beginning of his botanical work, in intimate exchange relations with the leading botanists of Europe, especially England, and derived from this source many extensive additions to his herbarium.

In 1864 Dr. Gray presented his herbarium and valuable library to Harvard College and it was then installed in the building which it now occupies and which had been constructed for it through the liberality of Nathaniel Thayer, Esq. At that time Dr. Gray estimated that it contained 200000 specimens, including both phaenogams and cryptogams. From the early seventies until the end of his life Dr. Gray was engaged in the preparation of the Synoptical Flora, and one source of the great value of the Gray Herbarium arises from the fact that so many of its specimens were critically examined and labeled during the progress of this work. Next in

importance to Dr. Gray's monographic work upon the flora of North America were his studies of the Mexican flora upon the basis of the rich collections of Xantus, Ervendberg, Gregg, Wright, Schaffner, Parry, Palmer, and Pringle, and very full sets of the plants secured by these collectors are to be found in the Gray Herbarium.

In 1870 Dr. Sereno Watson, who had been engaged at the Gray Herbarium in the identification of the extensive material from the Clarence King Exploration of the 40th parallel, was made Assistant, and later (in 1880) Curator of the Herbarium, Dr. Gray still holding the directorship until his death in 1888. After the death of Dr. Watson in 1892, Dr. B. L. Robinson, the present curator was appointed. The staff now includes, besides the curator, two assistants, a collector, and a librarian. The bryophytes and thallophytes have been transferred to the Cryptogamic Herbarium of Harvard University, and the Gray Herbarium, thus restricted to the phaenogams and pteridophytes includes at present 320000 sheets holding from 1 to 5 specimens each, and representing the vegetation of all lands. The usual rate of increase is from 10000 to 14000 sheets annually. Among the most noteworthy collections which have been partially or entirely incorporated in the Gray Herbarium are the herbaria of Jacques Gay, G. Curling Joad, John Ball (all rich in European plants); the herbarium of William Boott (containing a wealth of New England material chiefly from the suburbs of Boston, the White Mountains, and Vermont, also an extensive collection of *Carices* from both continents); the herbarium of Dr. George Thurber (noteworthy for its numerous critically examined grasses, as well as many plants of Rhode Island and northwestern Mexico), and the *Compositae* from the herbarium of Dr. F. W. Klatt, of Hamburg, specialist in that group.

The Gray Herbarium is arranged according to Engler & Prantl's Natürlichen Pflanzenfamilien and is open on week-days from 9 A. M. until 5 P. M. except Saturday afternoons. The library contains 12000 volumes and pamphlets. Except for the botanical serials, of which it contains a very full representation, it is nearly restricted to systematic works relating to the phaenogams and pteridophytes and is in its field very complete.

(*To be continued.*)

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